terns—concentric squares and rhomboids, zigzag, meander and key." This description applies to the easily transported personal articles such as spear throwers and shields as the natives were constantly on the move and as he says "Such a life did not encourage art."

Only four of the drawings can be interpreted with reasonable accuracy. Fig. 1 (a) probably represents a symbolical snake or tracks of the Two-legged Skink *(Lygosoma bipes)* very common in the area. Figs. 1 (b), 1 (c) and 2 (h) show respectively an Emu footprint, a human hand (drawn, not stencilled or printed) and a feeding kangaroo's tracks.

These interpretations are my own and more experienced observers may see more than I have.

Petroglyphs and pictographs are comparatively rare in the desert region and though this record provides no new media or format it is felt they should be recorded before their eventual disappearance.

Native names throughout this paper follow the alphabet set out by Douglas in his Grammar of the Western Desert Language.

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MALE BREEDING CALL AS AN AID TO IDENTIFYING SOUTH-WESTERN AUSTRALIAN FROGS

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The male breeding call of frogs functions to attract the female to the male of the same species. Hence, where several species may be breeding in a pond at the same time it is the distinctiveness of the call and the specific response patterns of the female which together reduce the opportunity for attempts at cross-breeding. The male breeding call of most of the South-Western species is so characteristic that verbal descriptions and comparisons of this behaviour may be efficiently applied to the field identification of species. Where some similarity exists the consideration of geographical range and breeding season affords clear separation. For the present purposes the geographical limits of the South-Western province are those defined by Main (1954), i.e. Western Australia south of the Tropic of Capricorn. In this region 25 species of frogs occur and the calls of 22 of these have been tape-recorded by the authors. One, *Myobatrachus gouldii,* has not been heard calling, and from its habits (Main, Littlejohn and Lee, 1959) it seems likely that no mating call is produced.

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Nomenclature used in this paper is based on Parker (1940), Lee and Main (1954), Moore (1954), Main (1957, a, b), Copland (1957) and Littlejohn (1957). As a result of detailed investigation of the frogs of South-Western Australia some modifications and additions to Main's (1954) key are required, namely:

1. The genus *Neobatrachus* is revived (Main, 1957 b), to include three species previously included in the genus *Heleioporus—pelobatoides, centralis* and *wilsmorei*. In addition a new species has been described—*sutor* (Main, 1957 b).
2. Two new species of *Heleioporus* have been described—*psammophilus* and *inornatus* (Lee and Main, 1954).
3. Three species previously included in the species *Crinia signifera* in Western Australia have been recognized—*insignifera* (Moore, 1954), *pseudinsignifera* (Main, 1957) and *subinsignifera* (Littlejohn, 1957). The original name *signifera* is now restricted to an eastern form.
4. *Hyla aurea* in South-Western Australia is now known as *moorei* (Copland, 1957).

Because of the diversity of the sounds attempts at keying would probably prove unsatisfactory. Rather, the species are arranged in a seasonal progression and each is included in that period when it is most commonly heard and when choruses are loudest (Table I).

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TABLE I.—Male breeding call, and calling position presented in a seasonal arrangement for 24 species of frogs occurring in South-Western Australia.

Season	Species	Call	Calling Position and habitat	Remarks
Summer (Dec.-March)	Neobatrachus centralis	short high-pitched trill	floating in shallow temporary ponds which fill after summer cyclonic rains and thunderstorms	also calls during autumn and winter if nights are warm
	Nebatrachus sutor	a long series of slowly repeated "taps"	as for N. centralis, but calls while sitting on edges of such ponds	Northern and Eastern Wheatbelt
	Neobatrachus wilsmorei	a loud explosive infrequent "tock"	as for N. centralis	
	Pseudophryne occidentalis	rather variable, long "squelch" to short "chick"	in shallow burrows in moist clay by temporary ponds of cyclonic rains and thunderstorms	sometimes calls during autumn if nights are warm; Eastern Wheatbelt and Goldfields
	Metacrinia nicholisi	a short grating call, slowly repeated: "ka-ak"	under moist logs in heavy forest	similar to P. guentheri and some of the call variants of P. occidentalis, but never found with these species
Autumn (April-May)	Heleioporus eyrei	a long low moan, slowly repeated	well-constructed burrow in sites of temporary swamps, before they fill	calling period very restricted
	Heleioporus psammophilus	a long series of rapidly repeated pulses: "put-put-put . . . ."	as for H. eyrei	" "
	Heleioporus inornatus	groups of 2-3 pulses repeated frequently: "woop-woop"	as for H. eyrei, but prefers sandy peats	" "
	Heleioporus albopunctatus	short high-pitched calls, slowly repeated: "coo-coo"	as for H. eyrei	" "
	Heleioporus australiacus	a low-pitched owl-like "hoot" slowly repeated	well-constructed burrow in creek banks in hilly country of Darling Scarp	" "
	Pseudophryne guentheri	a short grating call: "ka-a-ak," slowly repeated	under litter in shallow burrows in swampy country, before water table rises	found to the west of P. occidentalis
	Neobatrachus pelobatoides	a long soft purring trill, slowly repeated	floating in temporary ponds	may call in early winter if warm

Winter (June-August)	Crinia insignifera	a short rapidly repeated "peeping" call	floating in temporary ponds, or sitting in shallow water at edges	Swan Coastal Plain only
	Crinia pseud-insignifera	a short 4-pulsed "bleet", rapidly repeated	floating in temporary ponds, or sitting in shallow water at edges	Wheatbelt and to the edge of the Darling Scarp
	Crinia sub-insignifera	a long drawn-out "squelch", slowly repeated	floating in temporary ponds supported by vegetation	found in southern sandy swamps from Manjimup to Mt. Barker, then east and towards the South Coast
	Crinia georgiana	a variable duck-like "quack-quack"	sitting in shallow temporary hill-side streams and some of the streams on the coastal plain	
	Crinia leai	a metallic call: "chick, chick, chik-ik-ik"	in litter and vegetation by permanent water	odd calls through the year, especially along streams in the wetter forest country
	Limnodynastes dorsalis	a banjo-like "plonking" call	floating in temporary or permanent water	calls occasionally heard throughout year
	Hyla adelaidensis	an abrupt grating call: "ka-ark." occasionally ending in a high-pitched shriek	out of water from reeds and rushes in permanent lakes and swamps	some calls heard through year
Spring (September-November)	Hyla moorei	a long low modulated growl usually followed by 3-5 distinct grunts	floating or on floating vegetation in permanent swamps and lakes	
	Hyla cyclorhynchus	similar to H. moorei but faster and with parts of call less distinct	floating in permanent swamps and lakes (sometimes heard in rain-water tanks)	found to south-east of range of H. moorei; i.e. Ravensthorpe
	Hyla rubella	*"loud wheezing sound not unlike that made by the Silver Gull Larus novaehollandiae"	on vegetation adjacent to river pools	probably breeds opportunistically through the year whenever heavy rain falls
	Glauertia russelli	*"a short grating squelch: 'qrk . . . qrk' "	under dead fallen reeds by permanent water holes	probably also breeds opportunistically
Calls through whole year	Crinia glauerti	short tapping or rattling call with 5-7 taps, sometimes terminating in a "squelch"	sitting in shallow water in permanent streams and swamps or supported by vegetation	

* Breeding data is from Main and Calaby (1957)